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Asterostroma indicum sp. nov.

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Abstract — A new species of *Asterostroma*, *Asterostroma indicum*, is described and illustrated. The new species was found growing on the bark of a dead angiospermic log at Burdwan, West Bengal, India (altitude 30 m a.s.l).

Key words — *Mangifera indica,* asterosetae, gloeocystidia

Introduction

During a mycological excursion at Burdwan,West Bengal, India (altitude 30 m a.s.l) the author collected a portion of a fresh resupinate basidiocarp growing on the bark of a dead log of *Mangifera indica* L. A microscopical examination showed it to be a species of *Asterostroma* Massee. A search of the available literature (Boidin et al. 1977, Parmasto 1970, Rattan 1977, Welden 1966) gave no clue to its identity, and it was concluded that it represented an undescribed species.

Materials and methods

This paper is based on a specimen collected from Burdwan, West Bengal, India. Colour notations are given using the Munsell Soil Colour Charts (1975). Microscopic study was carried on making free-hand sections of basidiocarp or as squash mounts in 2% aqueous solution of KOH and stained in 2% aqueous phloxine. Sections were also mounted in 10% KOH solution and Melzer's reagent. For studying microscopic characters of basidiocarp observations were also made on vertical sections and their teased portions mounted in distilled water and cotton blue in lactic acid (Kirk et al. 2001). Basidiospores were measured including the length of the tubercles.

Taxonomy

Asterostroma indicum A.B.De**, sp. nov** Figures 1–8

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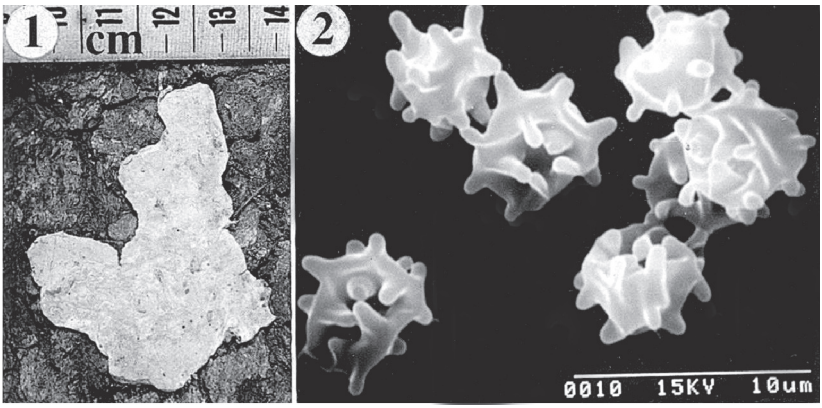
Carposoma resupinatum, membranaceum, spongiosum, ad 400 µm crassum; hymenium laeve, non crevisum; systema hypharum monomiticum; hyphae generatoriae cum septis,



Figs. 1–2. *Asterostroma indicum* (holotype): 1. basidiocarp; 2.basidiospores.

sinefibulis, hyalinae, diametro 2–4 µm; asterosetae numerosae, 3–5 radiatae; gloeocystidia clavata, subcylindrica, cylindrica vel utriformia, tenuiter tunicata, apice obtuso, 40–44 × 6–8 µm; basidia hyalina, clavata, tetrasterigmatica,20–24×5–6 µm; basidiosporae globosae, hyalinae, amyloideae, diametro (3.6–)4–4.8(–5.6)µm,incrassate tunicatae, tuberculatae, ad 1.5µm, apice obtuso.

Typus: *Lectus ad locum Burdwan, Bengalia occidentalis, India, die 14 octobri, 2004;* ***holotypus*** *positus in herb.BURD, herbario fungorum in sectio Botanicae, Burdwan Raj College, Burdwan, West Bengal, India (sub numero BRCMH AL 41); isotypus in herb. TAA (Estonia) conservatus (TAA).*

Etymology: *indicum*, growing in India

Basidiocarp (Fig. 1) resupinate, membranous, spongy, loosely adnate, up to 400 µm thick; hymenial surface light reddish brown (5YR 6/3), smooth, not creviced, dark brown in KOH; margin thinning, loosely adnate, concolourous with hymenial surface.

Hyphal system monomitic; generative hyphae (Fig. 4) simple septate, hyaline, thin- to very slightly thick-walled, branched, 2–4 µm wide; asterosetae (Fig. 5) abundant in context, mostly composed of 3–5 rays, rays up to 80 µm long and 8 µm broad, brown, subulate, unbranched or dichotomously branched, slightly darkening in KOH solution; gloeocystidia (Fig. 6) numerous, thin-walled, hyaline, clavate to subcylindric, cylindric or utriform with obtuse apex, contents granular with numerous small and few large oil droplets, staining deeply with phloxine, immersed or projecting up to 25 µm out of the hymenium (Fig. 3), 40–44 × 6–8 µm; basidia (Fig. 7) hyaline, thin-walled, clavate, tetrasterigmatic, 20–24 × 5–6 µm, sterigmata up to 3 µm long; basidiospores (Figs. 2 & 8) hyaline, slightly thick-walled, globose, amyloid, diameter (3.6–)4–4.8(–5.6) µm (mean diameter of 34 spores: 4.6 µm), tuberculate, tubercles cylindrical with obtuse apex, up to 1.5 µm long.

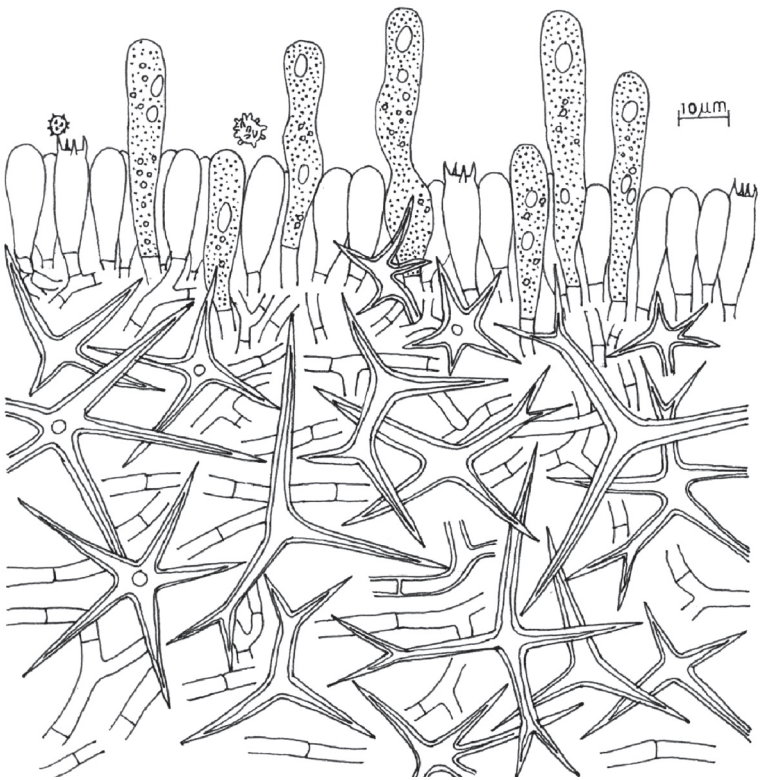


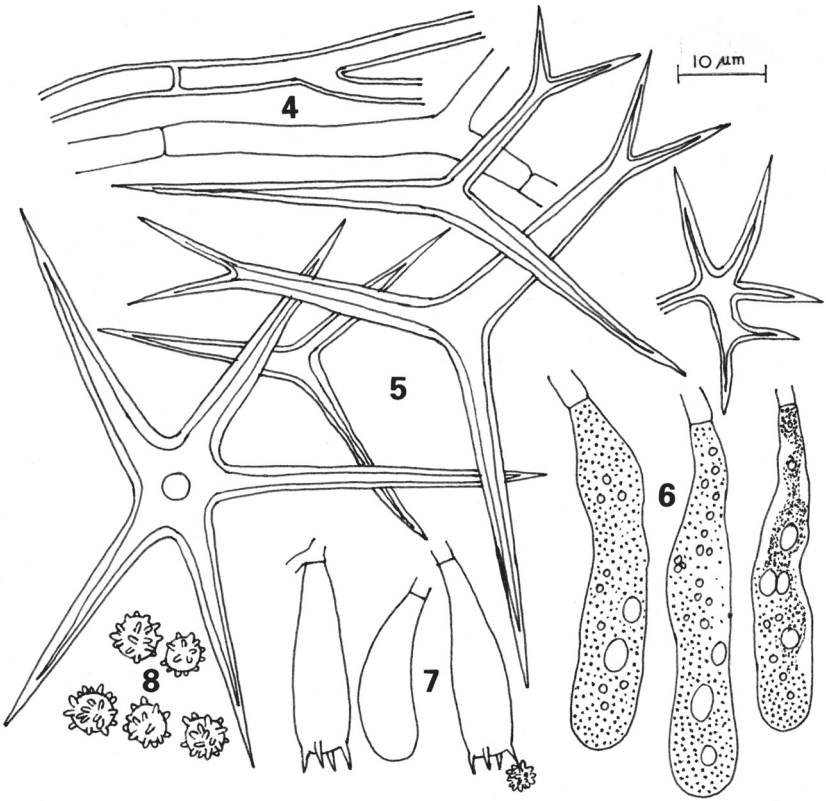
Fig. 3. Vertical section of basidiocarp of *Asterostroma indicum* showing asterosetae, simple-septate generative hyphae, gloeocystidia, basidia and basidiospores.

Habitat: On bark of a log of *Mangifera indica* L.

Distribution: Asia Tropical: India (found only in type locality near Burdwan, West Bengal).

Discussion

Asterostroma is a genus of the family *Lachnocladiaceae* that is characterized by resupinate basidiocarp with smooth hymenophore, monomitic hyphal system with simple septate generative hyphae, frequent gloeocystidia, and asterosetae (Parmasto 1970, Rattan 1977). As the fungus described above possesses almost all of these characters, it is described in the genus *Asterostroma. Asterostroma indicum* can be distinguished from all other *Asterostroma* species, however, by the following combination of features: (i) spongy, membranous, loosely



Figs. 4–8. *Asterostroma indicum*: 4. generative hyphae; 5. asterosetae; 6. gloeocystidia; 7. basidia; 8. basidiospores.

adnate basidiocarp up to 400 µm thick and with light reddish brown hymenial surface; (ii) occurrence on dead angiospermic wood; (iii) distribution in the plains of tropical India (altitude 30 m a.s.l); (iv) asterosetae comprising mostly 3–5 unbranched or dichotomously branched rays; (v) gloeocystidia clavate to subcylindric, cylindric or utriform with granular contents and numerous oil droplets; (vi) basidia hyaline, thin-walled, clavate, tetrasterigmatic,20–24×5–6 µm; (vii) basidiospores hyaline, slightly thick-walled, globose, amyloid, small (~4–4.8 µm), and with cylindrical tubercles up to 1.5 µm long with obtuse ends.

Distribution of *Asterostroma* species in India

Previously in India only two species of *Asterostroma* were known, namely *A. cervicolor* (Berk. & M.A Curtis) Massee and *A. muscicola* (Berk. & M.A.

Map 1. Distribution of the species of *Asterostroma* reported from India.

Curtis) Massee growing on stump and log of *Abies pindrow* (Royle) Royle and *Cedrus deodara* (Roxb.) G. Don (Bilgrami et al. 1991, Rattan1977, Sharma 1995) until I collected the species described here. *Asterostroma indicum,* therefore, represents the third species of *Asterostroma* in India. Among these three species, only *Asterostroma indicum* has been collected from the tropical plains of India; the other two species were collected from the coniferous forests of the temperate northwestern Himalayas. Locations of collections are given below [and distributions are shown on Map 1.]

Asterostroma cervicolor: Chamba, Dalhousie, Mahasu and Simla (H.P.); Musoorie, Ranikhet (U.P.).

Asterostroma muscicola : Dalhousie, Mahasu and Kulu (H.P.); Hemkund (U.P.); Bhadarwah and Batot (J.K.).

Asterostroma indicum : Burdwan (W.B.).

Key to *Asterostroma* species in India

1. Tubercles of basidiospores almost hemispherical, very few of the asterosetae with dichotomously branched ray ..... *A. cervicolor*

1. Tubercles of basidiospores conical or cylindrical with obtuse apex, many of the asterosetae with dichomotously branched rays 2

2. Basidiospores 6–8 µm in diameter with conical tubercles ..... *A. muscicola*

2. Basidiospores 3.6–5.6 µm in diameter with cylindrical tubercles ..... *A. indicum*

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